

CLAIMS

1. A moving body drive unit comprises:

a linear motor for imparting linear motion to a moving body, guide elements for non-contact guiding of

5 the moving body with respect to a support body,

an elongated scale etched with gradations,

a read head for detecting position of the moving body by reading gradations of the scale without contacting the scale,

10 a scale housing body for housing the scale and the read head, attached to one of the moving body or the support body and having an elongated opening through which one of the scale or the read head can be inserted into the scale housing body, and a supply port for
15 introduction of compressed air, and

a scale cover, attached to the other one of the moving body or the support body, forming an air chamber by sealing the elongated opening of the scale housing body in a non-contact manner with a microscopic gap.

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2. The moving body drive unit according to claim 1, wherein the scale housing body is attached to the support body, and the read head is supported on the scale housing body and wherein the scale cover is
25 attached to the moving body, and the scale is held on the scale cover.

3. The moving body drive unit according to claim 1, wherein the support body is made up of a bed base and a
30 support platform standing upright from the bed base, the moving body is a table capable of moving horizontally.

4. The moving body drive unit according to claim 3,
wherein the scale is arranged between the table and the
support platform.
- 5 5. The moving body drive unit according to claim 3,
wherein the guide elements include two bearing guides
parallel to each other and fixed to the support platform
symmetrically about a vertical center line of the table,
and a pair of hydrostatic air bearings forming bearing
10 clearances in each bearing guide and fixed to the table.
6. The moving body drive unit according to claim 3,
wherein the linear motors are provided below each of
the hydrostatic air bearings at an outer side of the
15 support platform.
7. A machine tool comprising:
a first drive unit having a linear motor for
causing movement of a table on which a workpiece is
20 mounted in a horizontal axis direction and a bearing
guide for guiding the table in a non-contact manner; and
a second drive unit having a linear motor for
causing movement of a Z axis slider on which a tool is
mounted in a vertical Z axis direction and a bearing
25 guide for guiding the Z axis slider in a non-contact
manner;
wherein the first drive unit includes an
elongated scale etched with gradations, a read head for
detecting position of the table by reading the
30 gradations of the scale without contacting the scale, a
scale housing body for housing the scale and the read
head, having an elongated opening through which one of

the scale or the read head can be inserted into the scale housing body, and a supply port for introduction of compressed air, and a scale cover forming an air chamber by sealing the elongated opening in a non-
5 contact manner with a microscopic gap; and
wherein the second drive unit includes an elongated scale etched with gradations, a read head for detecting position of the Z axis slider by reading the gradations of the scale without contacting the scale, a
10 scale housing body for housing the scale and the read head, having an elongated opening through which one of the scale or the read head can be inserted into the scale housing body, and a supply port for introduction of compressed air, and a scale cover forming an air
15 chamber by sealing the elongated opening in a non-contact manner with a microscopic gap.